



FIG. 1

FIG. 2A

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SEQ ID NO:7	PGSCGMYTANTMASAAEVLGLTIPNSSFFPAVSKKEKLAECNIGEYIKKTMELGILPRD	300
SEQ ID NO:2	AGACGMYTANTMASAETLGMSLPYSSSTPAEDPLKLEECRLAGKYLLLELLKMDLKPKD	
SEQ ID NO:4	AGACGMYTANTMASAETLGMSLPYSSSTPAEDPLKLEECRLAGKYLLLELLKMDLKPKD	
SEQ ID NO:6	241
SEQ ID NO:7	ILTKAFENAITVYVATGGSTNAVLHLVAVAHSAAGVKLSDDQFRIISDTTPLIGDFKPSG	301
SEQ ID NO:2	IITKSLRNAMIVMALGGSTNAVLHLIAIARSYGLHLTLDQFQVSDQVFFLADLKPSG	
SEQ ID NO:4	IITKSLRNAMIVMALGGSTNAVLHLIAIARSYGLHLTLDQFQVSDQVFFLADLKPSG	
SEQ ID NO:6	360
SEQ ID NO:7	KYVMADLINVGQTQSVIRKLYENNMHLGNTMTVTGDTLAERAKKAPSLPEGQEIIRPLSH	361
SEQ ID NO:2	KYVMEDLHKIGGTPAVIRVLEGLLDGDCMTVTGKTLAENAKI FPLPSGQOIIRPLDN	
SEQ ID NO:4	KYVMEDVHKIGGTPAVIRVLEGLLDGDCMTVTGKTLAENAKI FPLPSGQEIIRPVN	
SEQ ID NO:6	420

FIG. 2B

[illegible]

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19

121

100221* 05422001

Docket No: 88-1126
 Title: Plant Branched Chain Amino Acid Biosynthetic Enzymes
 Inventor: Severio Carl Falco
 Appl. No: 09/173,300
 E. I. DuPont de Nemours

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SEQ ID NO:20 * * * * * + + + + + * + + + + * + + + + * + + + +
 SEQ ID NO:09 QLVADKDWLPNAEGTSLYIRFIATPEFLGVAASHYKLLIILSPGSGYYKEGIKPKVK
 SEQ ID NO:11
 SEQ ID NO:13 SSFFFFFVSPVGNFKEGLSPIN
 SEQ ID NO:15 QTVLANKRWVPPQKGALYIRPLLLIGSGPILGAPAPAYETFLIYAAPVGTYFKEGLAPIN
 SEQ ID NO:17 DTVLANKRWVPPACKGSILYIRPLLLIGSGPVLGAPAPAYETFLIYVSPVGNFKEGGLAPIN
 SEQ ID NO:19 HTVLANKRWVPPCKGSLYIRPLLLIGSGAMLGVAPAPAYETFVVVYVCPVGHYFKOGLSPIS
 181 240

SEQ ID NO:20 * + * * * * + + + + + * + + + + * + + + + * + + + +
 SEQ ID NO:09 IAVESEFVRVAVKGGTGNAGTGNAGNYASSLKAQQVAEEKGFSQVLWDGIEKKYIEEVGSMN
 SEQ ID NO:11
 SEQ ID NO:13 LIVEDKFHRASPGGTGGVKTIGNYASVLKAQKIAKGGYSDVLYLDAVHDKYLEEVSSCN
 SEQ ID NO:15
 SEQ ID NO:17 LVVEDSIHRAMPGGTGGVKTITNAPVLKAQMDAKSIGTDLVLYLDAVHDKYLEEASSCN
 SEQ ID NO:19 LIVENEHFRATPGGTGA
 241 300

SEQ ID NO:20 * * * * * + + + + + * + + + + * + + + + * + + + +
 SEQ ID NO:09 IEFKINGEIVTPMLNGSILEGITRNSVIALKHWGLQVSEKRIADVIQAHKOGILEEA
 SEQ ID NO:11
 SEQ ID NO:13 IFWQDNVISTPAIKGTILPGITRKSIEVQAQSGKFKEERLVCVDELINA DEV
 SEQ ID NO:15 ..VWKGVVATPTDTRGTILPGITRKSITELARDRGYKVEERLVSDDL/AA DEV

FIG. 3B

100221" 0542200T

SEQ ID NO:15 LFIVKGVATPATVGTILPGITRKSIVIELARDRGYQVEERLVSDDLVGA.....DEV
 SEQ ID NO:17DEV
 SEQ ID NO:19 ILMVKDNWISTPLLTGTLPGITRRSIIETIAQNGLIQVEERLIAIDELLOA.....DEV
 301 360

 FGTGTAAVISPVGELIWQDETLSINNGETGEIAKKLYDTITGIQKGADE.FGWTTEVA
 SEQ ID NO:20
 SEQ ID NO:09
 SEQ ID NO:11 FCTGTAVVSPVGSVTYMGKVEYGNQGVGSQQLYKSLTSIQMGNV.EDMKGWMTQLN
 SEQ ID NO:13 FCTGTAVVAPVSTVYQGERVEF.RTGPDVSOELVTTLSIQMGMAEDSXGWTVPVE
 SEQ ID NO:15 FCTGTAVVAPVSSVTYHGQRYEF.RTGHDTLSQTLTTLTSLIQMGLA.EDKKGWTV...
 SEQ ID NO:17
 SEQ ID NO:19 FCTGTAVVLSPVGSIVYHGRVEYGGGKVGAVSQQLYSALTAIQKGLV.EDSMGWSVQLN
 361 420

SEQ ID NO:20 ALTESK
 SEQ ID NO:09
 SEQ ID NO:11 ..Q..
 SEQ ID NO:13 XIN..K
 SEQ ID NO:15 AID..
 SEQ ID NO:17R
 SEQ ID NO:19
 421 426

FIG. 3C

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*** +*****+***** +*****+ +**
SEQ ID NO: 29 MKTYLNGKFVDEKQAKVSFVDHGLLY.GDGVEGIRAYDGVVFMLEKHEIDRLYDSAKSLC
SEQ ID NO: 22 .....A.RVQPKAR
SEQ ID NO: 24 .....HEAMVIPMDDHMVHRHGVGVEDTAIMDQGLYELDQHLORFLRSASMSK
SEQ ID NO: 26 MYSSYGGIILDPAMMVIPIDDHVMVHRHGVGVEDTAIVLOGLYVELDVHLORFLSSASKAK
SEQ ID NO: 28 .....
1
+ + + * * * * * +*****+ + + * * * +
SEQ ID NO: 29 IDPLTKEEMTDVLETLRVNNLRDAYILRVTVRGVGLDLDRPKCKGKPTIFCIAIMPDP
SEQ ID NO: 22 IGTFFPDRDILRSILVQMTAASNCRRGSIRYWSAGGDFLLSAGCAGAPAYAVVPTDY
SEQ ID NO: 24 IDPFDGSIIRILIQTVSASKCRKGSIRYWSAGGDFQLSPSCCHRSSIYAIQIDLS
SEQ ID NO: 26 ISSPFSRVLHSILILQLTAAACKCKGTLRYWSAGGDFLLSAGCAGPTSAFYAVVIDDV
SEQ ID NO: 28 .....TRLSSGCTNPALYAVVIESPS
61
+ * + * * * * * +*****+ * * * + * + *
SEQ ID NO: 29 LLGEDGIRAITVSVRRLEPVDV.LNPAVKSLNVLSYLAQKIQANVAGVDEAFLLDDQGEVV
SEQ ID NO: 22 SQCRH...GVRVAVTTSVPMKPLEFATMKNNVILPNVLSIMDAEDRGAFASVWVDGEGNVA
SEQ ID NO: 24 PSSPN.FRGVKVTTSSIPKHPKFAITKSNVILPNVLSKVEAEAGAFVGIWLDGEGFVA
SEQ ID NO: 26 SQCKE...GVKVITSNIPKPSLEFATAKNVILPNVLSVMEAEKKGASSSTIWDDEGYIA
SEQ ID NO: 28 LQVPS...CCRVVTSSTIFIKSPQFAMKSVNLPNALTKVEGENGAFGTGIWLDDEGFVA
121

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FIG. 4A


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+      + + +      +      + + + + + + + + + + + + + + + +
SEQ ID NO: 29  EGTGDNL FIVKNGVLKTPPVYQSILKGTROVVILAKKEGIEVVEEPLTLHDLYT...
SEQ ID NO: 22  EGFNNVAFVTAAGELVLP A.FDKILAGCTAKRLLALAPRIVESGLLKAVTTRHIAADEA
SEQ ID NO: 24  EGFNNVAFVTKDKELIMPH.FDKILSGCTAKRVLTLAELREGKLGIRKVTIVVEEG
SEQ ID NO: 26  EGFNNVAFITQDKELVMPF.FDNILHGCTAKRLLLELAPKLVDOGLLGVAKKLVVEEA
SEQ ID NO: 28  EGFNNMVGFVTKNKELLMPR.FDKILSGCTARRVLTIAEHLVAHGKLSRVISRNVSVEEG
                181      240

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+      + + +      +      + + + + + + + + + + + + + + + +
SEQ ID NO: 29  ...ADELFITGTAAEIVPVEIDGRVINNKQVGEITKKLKEKFKDIR.....TKWGIKVV
SEQ ID NO: 22  KRCSAENAFVSGGLPVLPIVEWDDQLIGDGKVGKTMALSDLLWEDMKSGP...DRIAPVY
SEQ ID NO: 24  KQ.ADENMLLGSLVLCVPVQWDEQVIGDGKEGPIITQALLNLIIVEDMKSGPSTVRIIPVY
SEQ ID NO: 26  KA.AAENMYVGSTPLPLPIIWWDDQPIGNRGVGEITLMLSDMLWDDMVAGPGTQRIIPVY
SEQ ID NO: 28  KM.ADENMLLGSLVLCVPVQWDDKIIGSGQEGPIAQA.....
                241      300

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SEQ ID NO: 29  .DE
SEQ ID NO: 22  .K.
SEQ ID NO: 24  ...
SEQ ID NO: 26  VE.
SEQ ID NO: 28  ...
                301 303

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FIG. 4B

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SEQ ID NO: 34MTTKADYIWFNGEMVRWEDAKVHVMSHALHYGTSVFEGIRCYDSHKGPV
 SEQ ID NO: 31 QPPLSDPPLVPANKNILVMVGDELLPRNSAKVSVSDSVVQGGDAVMEGLRIYDGK....
 SEQ ID NO: 33A.....R.....
 1 60

SEQ ID NO: 34 ++++++ ++++++ ++++++ ++++++ ++++++ ++++++ ++++++ ++++++ ++++++ ++++++
 SEQ ID NO: 31 VFRHREHMORLHDSAKIYFPVYSQSDLEMEAC.RDVIRKNNLTSAVIR.ELIFVGDVGM
 SEQ ID NO: 33 VFKLDEHLDRLEFDSAKAMAFSNVPTRDWIKDAIEKTLIANGMENNNAHRLTLTRGKKVTS
 V.KLEEHLDRLEFDSKAMAFSNVPSROWIKDAIEKTLINANGMENNNAHRLTLTRGKKVTS
 61 120

SEQ ID NO: 34 ++++++ ++++++ ++++++ ++++++ ++++++ ++++++ ++++++ ++++++ ++++++ ++++++
 SEQ ID NO: 31 GVNPPAG.YSTDVIAAFPGWAGYLGAELQEQIDAMVSSWNRAAPNTIPTAKAGGNLYLS
 SEQ ID NO: 33 GMSPAFNLYGCALIVLA.EWKPPVYDNS..HGIKLVTAATRRNSPNSIDPKIHNN.NLIN
 GMSPTFNLYGCVLIVLA.EWKPPVYDNS..HGIKLVTAATRRNSPNSVDSKIHNN.NLIN
 121 180

SEQ ID NO: 34 ++++++ ++++++ ++++++ ++++++ ++++++ ++++++ ++++++ ++++++ ++++++ ++++++
 SEQ ID NO: 31 SLLVGEARRHGYQEGIALDVNGYISEGAGENLFEVKDGVLFPTPPFTSSALPGITRDALII
 SEQ ID NO: 33 NILAKIEGNLAQAEADAILMDKGFVSETNATNIFMVKKGIVLTPH.ADYCLPGITRATVM
 NILAKIEGNLAQAEADAILMDKGFVSETNATNIFMVKKGIVLTPH.ADYCLPGITRATVM
 181 240

FIG. 5A

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100221*0542007

 SEQ ID NO: 34 KLAKELGIEVREQVLSRESLYLADEVFMSGTAALITPVRSVDGIQVGEGRCGEPTKRIQQ
 SEQ ID NO: 31 DLVVKENFVLHERRISLSEFHAADDEVTTGTMGELITPVWMIDGREIGDGKIGLVTQIQK
 SEQ ID NO: 33 DLVVKENLVLHERRISLSEFHAADDEVTTGTMGELITPVWMIDGREIGDGKIGLVTQIQS
 241 300

 SEQ ID NO: 34 AFFGLTGETEDKQWLDQVNO
 SEQ ID NO: 31 AYKILTAGQGVPIG..VAEV.
 SEQ ID NO: 33 AYKVLTAGLGVTPR..NAEA.
 301 322

FIG. 5B

[illegible]

**	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
EKHVAPGEVVVGADSHCTTGAFGAFATGIGTDMAHVFATGKLWVKVPETIYENITGD	ID NO: 45	SEQ																		
QEGHCRGEVLGTDSHTCNACAGFGFATGIGNTDAGFVMGTGKALLKVPPIREVLVDGE	ID NO: 36	SEQ																		
QEACHRCPEVLGTDSHTCNACAGFGFATGIGNTDAGFVLGTGKALLKVPPIRILDE	ID NO: 38	SEQ																		
QEGHCRGEVLGTDSHTCNACAGFGFATGIGNTDAGFVMGTGKALLKVPPIREVLVDGE	ID NO: 40	SEQ																		
QEGHCRGEVLGTDSHTCNACAGFGFATGIGNTDAGFVMGTGKALLKVPPIREVLVDGE	ID NO: 42	SEQ																		
QEGHCRGEVLGTDSHTCNACAGFGFATGIGNTDAGFVMGTGKALLKVPPIREVLVDGE	ID NO: 44	SEQ																		
121																				
180																				

FIG. 6A

100221-054/2001

Plant
Title: Plant Branched Chain Amino Acid Biosynthetic Enzymes
Inventor: Severio Carl Falco
Appl. No.: 09/173,388
E. I. DuPont de Nemours

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      ++++++
SEQ ID NO: 45 LQPVYTSKDVILSIIGEVGDGATYKACFGGETVKKMSIASRMTMTNMAIEMGSGTGII
SEQ ID NO: 36 MPPYLLAKDLIIQIIGEISVSGATYKSMFVGSVTSVSLTWEERMTLCNNVYEAGGKNGV
SEQ ID NO: 38 MPPYLLAKDLIIQIIGEISVSGATYKSMFVGSVTSVSLTWEERMTLCNNVYEAGGKNGV
SEQ ID NO: 40 MPPYLLAKDLIIQIIGEISVSGATYKSMFVGSVTSVSLTWEERMTLCNNVYEAGGKNGV
SEQ ID NO: 42 .....
SEQ ID NO: 44 .....
      181
      ++++++
SEQ ID NO: 45 EPDEKTIQVKEAMKKHGTGTFEVIKGDDEAEFAEYVEIEADKIEPVFACPHNVQV
SEQ ID NO: 36 PADETFKYLEGR....TSVDYQPVYSDAEARFFSDYRFDVSKLEPVAKPHSPDNRAL
SEQ ID NO: 38 PADETFKYLEGR....TSVDYQPVYSDAEARFFSDYRFDVSKLEPVAKPHSPDNRAP
SEQ ID NO: 40 .....
SEQ ID NO: 42 .....LEGG....TSLPYEPVYSDDQARFLAEYRFDVSKLEPVAKPHSPDNRAL
SEQ ID NO: 44 .....
      241
      ++++++
SEQ ID NO: 45 AREVAGKPIDQVIGSCTNGRLEDLRMAIKIEKHGGIADDRVVVTPASREYVLKALKE
SEQ ID NO: 36 ARECKDVKIDRVYIGSCTGGKTEDEFLAAAKVFLA.SGKKVKVPTFLVPATQKVMWDVYSL
SEQ ID NO: 38 ARECKDVKIDRVYIGSCTGGKTEDEFLAAAKVFLA.SGKKVKVPTFLVPATQKVMWDVYSL
SEQ ID NO: 40 .....
SEQ ID NO: 42 ARECKDVKIDRVYIGSCTGGKTEDEFLAAAKVFLA.SGKKVKVPTFLVPATQKVMWDVYSL
SEQ ID NO: 44 .....FLAAAKVFLA.SGKKVKVPTFLVPATQKVMWDVYSL
      301

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FIG. 6B

100221.05h/2001

Docket No: BB-1126
 Title: Plant Branched Chain Amino Acid Biosynthetic Enzymes
 Inventor: Saverio Carl Falco
 Appl. No: 89/173,388
 E. I. DuPont de Nemours

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*****  ****  +*****+ +*****+ *****+ *****+ *****+ *****+
SEQ ID NO:45  GI.....IEKFLKYGC--VVTNPSACMG...LYGVLPGEV/CVSTSNRNERGRQG
SEQ ID NO:36  PVPGSGGKTCQAIFEEAGCDTPASPCGACGLGGPRDTYARMNEPT/CVSTTNRNFPGRMG
SEQ ID NO:38  PVPGSGGKTCQAIFEEAGCDTPASPCGACGLGGPRDTYARMNEPT/CVSTTNRNFPGRMG
*****
SEQ ID NO:40  .....
SEQ ID NO:42  PVPGSGGKTCQAIFEEVGCDTPASPCGACGLGGPRDTYARMNEPT/CVSTTNRNFPGRMG
SEQ ID NO:44  PVPGSGGKTCQAIFEEAGCDTPASPCGACGLGGPRDTYARMNEPT/CVSTTNRNFPGRMG
*****
*****+*****+*****+*****+ *****+
SEQ ID NO:45  SLEAIYLASPTAAACAVKGLVDPRDL..
SEQ ID NO:36  HKEGQIYLASPTAAASALTGYVTDPRDFLM
SEQ ID NO:38  HKEGQIYLASPTAAASALTGYVTDPRDFLM
*****
SEQ ID NO:42  HKEGQIYLASPTAAASALTGYVTDPRDFL.
SEQ ID NO:44  HKEGQIYLASPTAAASALTGYVTDPRDFLS
*****

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420

361

452

421

FIG. 6C

100221-05422001

DO-1160
 Title: Plant Branched Chain Amino Acid Biosynthetic Enzymes
 Inventor: Severin, Carl Falco
 Appl. No: 85/173,388
 E.J. DuPont de Nemours

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+ * * * * *
SEQ ID NO: 54 MEKFTIYKGTSPV.....
SEQ ID NO: 47 M..AAALSGTAVS.....
SEQ ID NO: 49 M..AAAAAPALSLAE..AAPVTAVLAPCPTSPRTFRRRSWVAACIK.....
SEQ ID NO: 51 MRKXTEVREALSIQWPCTRFSAAVLPRLNAFTKLSLSHSHLLPRELSEPTPKSSN
SEQ ID NO: 53 .....ARAAVS.....
1 60

* * * * *
SEQ ID NO: 54 .....VMNDNIDTDQIIPKQFLKAIDKK...GFGK
SEQ ID NO: 47 A...GSIVPAAAAAAGSSSPSSAVFHGECFVVGNDITDQIIPAEHLTLVPSKPDYEYK
SEQ ID NO: 49 SRPLTAVVAAAAAAGADSTSGVFHGECEVVGNDITDQIIPAEHLTLVPSKPDYEYK
SEQ ID NO: 51 PNRVAVSLQTPRAQSAASPSASFGLCVVVGNDITDQIIPAEHLTLVPSKPDYEYK
SEQ ID NO: 53 A...GSIVPAAAAAAGSSSPSSAVFHGECFVVGNDITDQIIPAEHLTLVPSKPDYEYK
61 120

* * * * *
SEQ ID NO: 54 NLFYEWRYLKDYDENPDFILNAPKYKASLLIGDNFGCGSSREHAAPWALS DYGFRAIIA
SEQ ID NO: 47 LGSFAFAGLPSAAAYPTFPVAPGESSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVA
SEQ ID NO: 49 LGSFAFVGLPTAAAYPTFPVAPGETTRYAVIIGANFGCGSSREHAPVALGAAGARAIVA
SEQ ID NO: 51 LGSYALIGLP.ATYATRFIPGEIKTRYAIIVGGANFGCGSSREHAPVALGAAGARAIVA
SEQ ID NO: 53 LGSFAFAGLPSAAAYPTFPVAPGESSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVA
121 180

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FIG. 7A

181

241

FIG. 7B